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M&A Performance Across the Business Cycle

Best Timing of M&As at The Swedish Stock Market

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Abstract

Title: M&A Performance Across the Business Cycles- *Best Timing of M&As at The Swedish Stock Market*

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Key words: M&A, Business Cycles , Abnormal Returns, Event Study.

Purpose: The purpose of this thesis is to test if the depth of business cycles, i.e. if the acquisition is performed early or late within a cycle, affects performance. The intention is to contribute to M&A research by using stock market data and accounting data from selected companies to bring further light on post-performance research by adding the variable of business cycles. The authors also wish to shed light on these issues by investigating whether acquisitions undertaken in boom and bust periods differ in success rate.

Methodology: This study is undertaken using a quantitative approach. The methodology has been completed to fit the purpose of the thesis and the given time frame. Two statistical tests, Student´s t-test and Wilcoxon Test, have also been performed in order to determine significance of the results.

Empirical foundation: M&A activity by companies on OMXS30 between 1994 and 2011.

Conclusion: The findings of this thesis imply that the abnormal returns of M&As varies across the business cycle. This suggests that top management at companies could gain a lot if they pay more attention to the business cycle and when to conduct M&As. The results of this thesis complement existing research on M&A performance in business cycles, e.g. Bouwman et al. (2007) and Pangarkar and Lie (2004), but it also adds to research by measuring performance in terms of depth of each business cycle.

"When the phone doesn't ring, you'll know it's me."

(Warren Buffet´s opinion on when M&As should be conducted, 2011)

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1.   Introduction

1.1   Background

Today, there are numerous companies seeking to grow through mergers and acquisitions (M&As). Looking at the history of M&As a known fact is that they often occur in larger waves. Harford (2005) and Mitchell and Mulherin (1996) found the reason to be regulatory, economic and technological factors together with sufficient liquidity of companies enabling them to pursue deals. Very often, these periods are characterized by strong capital markets and thriving optimism about future prospects (Gregoriou, 2007, p. 2). The waves have mainly been consisted of M&As done in the USA, but in the 1990s the fifth merger wave on the European market made the total value of the transactions in Europe comparable to the transaction value of M&As in USA (Appendix 7.6.1). One explanation is the implementation of the euro as currency in Europe, something that encouraged more transactions in the beginning of the 21th century. In the fifth merger wave, size did matter! High stock valuations combined with a global perspective on competition gave large companies the urge to grow bigger and to maintain or increase their market share. Large mergers during this period were, amongst many, Exxon and Mobil, Boeing and McDonnell Douglas and Vodafone and the German industrial giant Mannesmann, which was the largest merger of that time, (Lipton, 2006). This period, the late 1990s, would later be referred to as the "the decade of deregulation" by Andrade et al. (2001).

Since this period M&A activity has declined in transaction value but there is still a vast number of firms wanting to grow outside their industry or business that use M&As as a way of achieving that. Internal, organic, expansion might not be sufficient for those managers that search for fast or new growing opportunities (Gaughan, 2007, p. 117). Although growing by M&As provides the most rapid way of growing, there are many uncertainties that need to be considered. Today, many say that M&A is a loser's game, but that is not always the fact. Instead there is evidence that M&A actually pay in general (Bruner, 2005, p. 7). This is contradictive to the findings of King et al. (2004). They found M&As not to be value creating. Performance of M&As depend on whether focus is on shareholders of the target firm or shareholders

of the acquiring firm. Research has proven that M&A pays for the shareholders of the target firm. From a bidder's perspective around 20-30 per cent of all transactions are generating returns in excess of the required return. Around 60-70 per cent of M&A deals are a success in the sense that the transactions are satisfying for the investors (Bruner, 2002). M&As are also associated with failures to meet expectations when synergies and growth are conspicuous with their absence. In those circumstances the buying firm sometimes overestimates the outcomes of an M&A. Research conducted by Rhodes- Kropf and Viswanathan (2004) and Javanovic and Rousseau (2001) indicates that M&A activity is driven by optimistic market expectations. Rhodes-Kropf et al. (2005) support this research by empirical findings that market conditions give rise to M&A activity and in the end, merger waves. All M&A deals need to be structured individually to gain the highest possible probability of success. Synergies and growth does not come by themselves.

1.2   Problem Discussion

M&As have long been an object of fascination in the field of finance. Valuation impacts and motives behind deals are often the primary focus of researchers. However, M&As are complex in their nature and the concept contains many interdependent activities such as financing, integration, due diligence etc. (Hitt et al., 2001). While some research have been sceptical towards the motives leading up to an M&A, e.g. Roll´s theory, which will be explained further later in the text, there is also research that points out hardship in realizing expected synergies like the "synergy-trap" by Sirower (1997). There are numerous studies that focus on different aspects of M&A success; accounting based performance, stock market returns, cultural outcome etc. Aspects like relatedness and integration have been studied by Datta (1991), Larsson and Lubatkin (2001) and (Capron, 1999). Differences in size and overall power between the acquirer and the target firm have been conducted by Larsson and Finkelstein (1999). Some studies have focused on the short term impact, mostly done by event studies comparing expected levels of change with the actual changes that occurred at the announcement of the M&A. Studies like this take the investor perspective. Generally, the return for the target firm's shareholders is greater than the return to the bidding firm's shareholders (Cheng et al., 2004). According to Gregoriou (2007) there are three factors that make M&A performance research rather dim:

- Wrong transactions are studied
  - many small deals are often excluded from the research
- Faulty measurements of performance are used
- Time frames used are wrongly adopted

Existing M&A research has in the recent decades been extended to cover more than the financial aspects in M&A performance. While culture and organizational factors are more in focus today one should always keep in mind that there is not one correct way of measuring M&A success. Much of the research today is focused on other aspects than M&A in business cycles and human factors such as cognitive biases while performing an M&A. The literature has not fully covered this topic and the authors believe that there is much left to do. This area of research could provide important knowledge about top management decisions and when M&As pay and where they stray in the business cycle.

Existing research on M&A activity, e.g. Rhodes- Kropf and Viswanathan (2004) and Schleifer and Vishny (2003), conclude that boom periods support higher M&A activity due to misevaluations. In the end, the misevaluations could be too excessive and potential value destroying. Other research, e.g. Banerjee (1992) and Bikhchandani et al. (1998), imply that M&A activity continue when it is already high because firm specific signals are ignored on behalf of predecessors. This suggests that firms doing M&A late in a merger wave are more likely to experience unprofitable deals. Rhodes-Kropf and Viswanathan (2004) suggest in their theory that misevaluations can lead to ex-post mistakes, correlated to high market valuations. In bust periods targets will consider bids where the premium outweighs the future outlooks. In boom periods targets tend to consider bids more favourable and the likelihood that the deal is completed increases. This could indicate that the best deals are done when markets are bearish. According to Bruner (2005) the worst deals are associated with "hot" equity markets. This thesis will expand existing research of M&A activity and connect it to post-deal performance to determine if M&A success is depending on business cycles. According to Pangarkar and Lie, (2004) acquiring in low market-value cycles has been shown to result in better performance. They suggest that managers of acquiring companies are less likely to pay high premiums, and therefore overpay, when the

market is low. A similar study was conducted by Bouwman et al. (2007). According to their findings they report higher announcement returns for firms during boom periods but lower long-run stock and operating performance compared to firms acquiring in bust periods. The sample for Bouwman et al. (2007) was collected between 1979 and 2002 and consisted of 2944 acquisitions performed in the US market. Another study by McNamara et al. (2008) brought light on M&As in merger waves. They found that acquirers gain higher returns when they acquired early within an industry merger wave whereas the returns for late acquirers are smaller.

The authors will assess whether managers can evaluate information about the business cycles and cognitive biases as a tool to increase the success rate of M&A and to maintain adequate levels of stock returns. If so, can it be used as a strategic tool for managers to understand why they engage in M&A activity in different economic periods and how they can adjust the M&A activity to gain highest possible returns by understanding the overall economic trends. The research area of M&A performance is rather extensive. The area of this thesis however, i.e. the impact of business cycles as a determinant of acquisitions performance, has not been thoroughly researched. The few narrow studies do not take the depth of business cycles into account when measuring performance like this thesis will and the authors have not found any study performed on the Swedish market.

The authors will apply one-research question, which will give more of a helicopter perspective, and then try this with four hypotheses. The first question is connected to business cycles and biases possibly influencing managers in M&A situations:

> *To what extent have firms on OMSX30[1] earned abnormal returns of M&As across the business cycle?*

For the first two hypotheses the aim is to look at boom periods as a yardstick for predicting M&A outcome. If the hypotheses stand, it would indicate that it is better to perform M&As early in boom periods.

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[1] OMXS30 is an index consisting of Stockholm Stock Exchange 30 most traded shares. (OMXS30 Fact Sheet, 2012)

H.1   M&As carried out late within a boom period yield a higher risk of negative abnormal returns

H.2   M&As carried out early within a boom period yield a lower risk of negative abnormal returns

The third and forth hypotheses will test the same parameters above but for bust periods instead. If the hypotheses stand, it would indicate that it is better to perform M&As late in bust periods.

H.3   M&As carried out late within a bust period yield a higher chance of positive abnormal returns

H.4   M&As carried out early within a bust period yield a higher risk of negative abnormal returns

1.3   Purpose

The purpose of this thesis is to test if the depth of business cycles, i.e. if the acquisition is performed early or late within a cycle, affects performance. The intention is to contribute to M&A research by using stock market data and accounting data from selected companies to bring further light on post-performance research by adding the variable of business cycles. The authors also wish to shed light on these issues by investigating whether acquisitions undertaken in boom and bust periods differ in success rate.

1.4   Demarcations

The demarcations are made due to limited resources in terms of time and available data. Except this, there are additional methodological demarcations in chapter 2.

- This thesis is limited to only measure performance across business cycles and performance in terms of depth of the cycles. Other aspects that could potential

have an effect on performance are not included, e.g. acquirer experience, payment method etc.

- The data of this thesis has been collected from M&As performed by companies on the OMXS30 index in Sweden during the years 1994-2011. All deals must have been done by the parent company to be included in this sample. Some deals are made by subsidiaries but it has proven to be difficult to find adequate information about those deals. Most of the targets are private companies hence collection of information has been excluded from those companies. The information about the deals is based on press releases on the announcement of the deals accessed through DataStream[2].

- The included companies are on the OMXS30 as of today. The "today" restriction is used to avoid delisting biases, since well performing firms end up on OMXS30 and this change over time would a yearly selection only include successful firms.

- Investment firms on OMXS30 have been excluded since they are acquisition experts. Companies within telecom and IT have been excluded because of the volatility hence average destroying results. It all comes down to companies within traditional industries, which are fairly stable.

- There is no restriction about origin of the target neither if it is a public or private target.

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[2] DataStream is a data base provided by Thomson Reuters

1.5   Outline

2. Methodology

Chapter two describes the research methods used to obtain and process data. It also provides an explanatory picture about what data was collected as well as methodological demarcations.

3. Research and theoretical background

This chapter provides the theoretical foundation for the thesis. Chapter three also covers aspects of measuring M&A performance. It also focuses on relevant theories about behavioral corporate finance and research about M&A in general.

4. Results and Analysis

In chapter four the authors present the results of the thesis. The findings will be the result of our data sample, which were obtained using the research methods mentioned in chapter two. The empirical results will be presented and analyzed with the theories and research presented in chapter three.

5. Conclusion

In chapter five there will be a concluding discussion about the findings in of this thesis. Thoughts and opinions about the findings will be expressed in addition to an acquisition guide and suggested further research proposals in the area of M&A in business cycles and behavioral aspects of M&A decisions.

2.   Methodology

This following chapter will present the methodological framework of the thesis. Different academic research methodologies have been reviewed and the most suitable are described below. The reader will be guided through the data sampling, why an event study is suitable and how the tests were conducted. Control variables that have been used are described. Also, how the results are validated and of primary and secondary data sources are scrutinized. Finally, there is a section of source criticism along with validity and reliability of the results.

2.1   Literature Study

The starting point of this thesis was a literature study. The literature has been a foundation for the deductive approach the authors have decided on. The authors have found most of the literature through online libraries with search criteria such as; *M&A Performance; Drivers behind Mergers and Acquisitions; M&A waves; M&A and Business Cycle; M&A outcome; Mergers and Acquisitions short term performance, Mergers and Acquisitions long term performance; Event Studies.* Additionally, the authors have used books mainly to give a wider perspective to the thesis. The aggregated mass of M&A studies is enormous where as the authors have tried give a brief introduction to prior research in chapter one. Chapter three will guide the reader through the most important theories for this study. The areas covered will be; M&A performance and what that is; M&A and Market Timing will guide the reader through research on when M&A should be conducted to be value creating; behavioral aspects of M&A refers to why management decide to engage in M&A activity; finally will Birkshire Hathaway's M&A strategy be given as a practical example.

2.2   Selection of Research Methodology

After the topic of the thesis was decided upon the authors started to look for the best way to test and answer the hypotheses and research question. Since the fundamental aim is to research performance an event study is appropriate according to Mackinlay (1997).

2.2.1   Event Studies

When economic events are supposed to be measured event studies are used in various ways. Market data is used to evaluate the impact of a certain event in a firm during a

pre defined event window. In an event study it is very important that the event is easy to define. When calculating Cumulative Abnormal Return (CAR) an important factor is to evaluate the expected return without any event, i.e. the market return. There are a number of different approaches available; the main categories are statistical and economic. Models using a statistical approach rely solely on statistical assumptions and do not consider economic arguments, the economic models take investor´s behaviour into consideration but they are still dependent on statistical assumptions. Statistical models are commonly used and one of them is the *Constant Mean Return Model (CMRM),* which is a simple model in which the average normal rate of return is assumed to be constant for the calculation and the more developed *Market Model* that relates the return of a single share to the market portfolio. The Market Model is considered to be an elaborated version of the CMRM because its ability to eliminate returns created by the volatility of the market. This in turn reduces the volatility of the abnormal return. (MacKinlay, 1997)

The economic models are the *Capital Asset Pricing Model (CAPM)* and the *Arbitrage Pricing Model (ATP)* these models are no longer commonly used in event studies since they give little or no advantage over the statistical models, which are easier to use. (MacKinlay, 1997) According to MacKinlay (1997) there is little or no benefit in using the more sophisticated models and Haleblian and Finkelstein (1999) show that there is little or no gain in using a risk adjusted model as well. Their suggestion is to use a market adjusted model (Eq. 2.1).

2.2.1.1 Efficient Market Hypothesis

An efficient market is a market where all available information is reflected in the share price. Fama (1970) developed this theory from existing theories called "Random Walk" and "Rational Expectations Theory" which did not have high credibility. It was first when Fama (1970) highlighted these theories it reached acceptance (Jensen, 1978). Fama (1970) makes a separation between markets in:

- *Weak form*
- *Semi-strong form*
- *Strong form.*

In the weak form investors may gain returns above the market through fundamental analysis, but not through technical analysis relying on historical share prices. A semi-strong market implies that share prices rapidly react to all public information and no excess returns can be earned from trading on this information. Neither fundamental nor technical analysis will be a reliable way of beating the market. At a strong market the share price reflects all information and no one can earn excess returns. (Fama, 1970) The assumptions behind the efficient market hypothesis are the foundation of an event study. Event studies rely on the efficient market hypothesis, that the market reflects all information immediately and that companies are fairly priced at their fundamental value. Hence, changes in the share price should be directly reflected to the announcement. In practise, there might be some differences though as markets might not react efficiently and situations affecting this could be e.g. due to restrictions to arbitrage, insider information and irrational behaviour.

2.2.1.2 Description of Performance Measures

The aim of this thesis is to measure M&A performance; the essence of this problem is to set up parameters of how to measure it. The most common method used to compare the return is to measure pre- and post merger data. Bidder's performance will be measured with CAR and Cumulative Average Abnormal Return (CAAR). The returns will be measured at different points in time to get a wider view of the returns. The windows used will be T -2 to +2 days, T -6 to +24 days, and T -30 to +260 days.

Figure 2.1: Event Windows

1.

$\tau = -2$ $\qquad$ $\tau = 0$ $\qquad$ $\tau = +2$

2.

$\tau = -6$ $\qquad$ $\tau = 0$ $\qquad$ $\tau = +24$

3.

$\tau = -30$ $\qquad$ $\tau = 0$ $\qquad$ $\tau = +260$
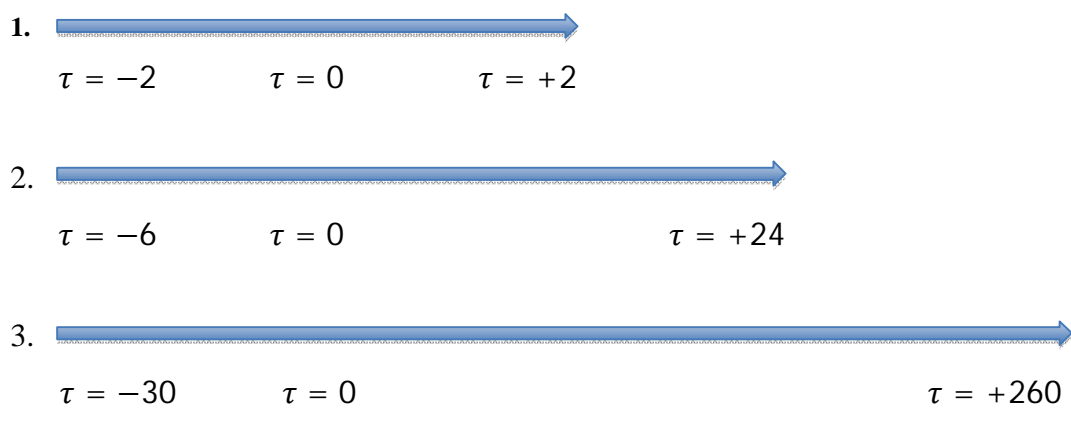
The first event window has been set up to cover a window without a lot of noise from other corporate actions but still big enough to take market changes into consideration.

MacKinlay (1997) does suggest measuring the outcome of different event windows and therefore getting a better precision in the data analysis. The second window is set up to cover eventual insider knowledge; this window covers 31 days and might be affected by other corporate actions. The last event window cover 291 trading days and will be disrupted by other corporate actions and the long event window does not align with the efficient market hypothesis, still it is included in the analysis to get a more long term perspective. The long-term performance will be measured with accounting data to support the findings of the event study. A further description of accounting data can be found in section 2.5.

2.3   Data Selection

In the data sample some restrictions have been in addition to the demarcations in section 1.4. Most of the targets are private companies hence collection of information has been excluded from those companies. The information about the deals is based on press releases on the announcement of the deals accessed through Datastream. When information was missing about the deal size the authors first investigate further through Internet search and if information was still missing the authors excluded the deal from the analysis. The final sample consists of 139 deals made by 16 companies over a period between 1994-06-07 until 2011-12-27. The last deal, performed in 2011, creates some implications on the last event window; still the authors included the deal in the analysis of the shorter event windows.

2.3.1   Control Variables

To eliminate misleading conclusions some control variables of M&A performance have been added.

2.3.1.1 Relatedness

Previous research suggest that relatedness of the firms in M&A transactions is an important factor to examine; more related companies are more likely to success. This would suggest that companies in unrelated industries would underperform. (Capron, 1999) The relatedness in this thesis is based on the information of the press release or on the information given by Datastream. In the statistical testing this will serve as a control variable, taking the value 1 if the companies are related and 0 if they are unrelated.

2.3.1.2 Cross Border

Cross border transactions is subject to more complexity, and complexity is shown to be correlated with poor performing deals (Hitt and Pisano, 2003). This variable added will take the value 1 if it was cross border deal and 0 if it was a domestic deal.

2.3.1.3 Integration Form

Horizontal M&As are expected to have a better post-performance compared with vertical mergers. This implies that organizational integration is important for the value creation of an M&A. (Capron 1999) In the sample the authors marked a horizontal M&A with 1 and a vertical M&A with 0.

2.4   Equations and Calculations

2.4.1   Abnormal Return

The abnormal return (AR) formula is used for all samples during the event windows. In this thesis there are three time windows and AR is calculated for all three time windows throughout all samples. The formula to calculate AR is as follows:

Equation 2.1: AR $$e = R_{it} - R_{mt}$$

R_{it} = return on the stock i for day t
R_{mt} = return on the market portfolio for day t

Source: Brown and Warner (1980, 1985)

2.4.2   Cumulative Abnormal Return

CAR is simply the sum of the AR in the event windows. In this thesis CAR is used for all event windows. The formula used to calculate CAR is:

Equation 2.2: CAR $$CAR(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_\tau$$

Source: MacKinlay (1997)

2.4.3   Cumulative Average Abnormal Return

After CAR is calculated for all sample deals it is possible to calculate CAAR. To calculate CAAR the following formula is used:

Equation 2.3: CAAR $\qquad CAAR(\tau_1,\tau_2) = \sum_{\tau=\tau 1}^{\tau 2} AAR_\tau$

Source: MacKinlay (1997)

2.4.4 Variance of CAR

In order to execute the Students t-test (see 2.4.6) the variance of CAR (V(CAR)) is needed. The formula used to calculate V(CAR) is:

Equation 2.4: V(CAR) $\qquad V(CAR) = \sigma_i^2 = (\tau_1 - \tau_2 + 1)\sigma_{\varepsilon i}^2$

Source: MacKinlay (1997)

2.4.5 Variance of CAAR

A variable needed for the completion of the t-test is the variance of CAAR (V(CAAR). In order to obtain V(CAAR) for all samples the following formula is used:

Equation 2.5: V(CAAR) $\qquad V(CAAR(\tau_1,\tau_2)) = \frac{1}{N^2}\sum_{i=1}^{N}\sigma_i^2(\tau_1,\tau_2)$

Source: MacKinlay (1997)

2.4.6 Student´s t-test

The t-test conducted is a statistical test in which the results acquired follow the t-distribution if it supports the null hypothesis. A positive result indicates that the statistical accuracy is more reliable. The equation to calculate the t-test is:

Equation 2.6: Student´s t-test $\qquad \tau = \frac{CAAR(\tau_1,\tau_2)}{\sqrt{V(CAAR(\tau_1,\tau_2))}}$

Source: MacKinlay (1997)

2.4.7 Wilcoxon Test

The Wilcoxon Test is, as opposed to the t-test, a non-parametric test that is used to rank the data samples by size. In this case the abnormal returns for each event window

are ranked from 1, lowest value, to n, which is the highest value. The Wilcoxon Test is used to evaluate whether the results are significant or not. The main explanation behind having the Wilcoxon Test is that it eliminates results that are far from the mean average, so called outliners, which can have a large impact on the end result of the testing (Körner and Wahlgren 2006, ch.12). All the calculations of the Wilcoxon Test have been conducted in Excel.

2.4.8 Normality Testing

In order to test whether the data samples in each event window are normally distributed or not normality test needs to be used. There are a couple different normality tests that are more common than others, such as Andersson-Darling, Kolmogorov-Smirnov and Shaprio-Wilk. For this thesis the Shapiro-Wilk test is used, which is most commonly used (Gastwirth et al., 2007). If the results from the Shapiro-Wilk tests imply that the sample within the event window is normally distributed the t-test is the most relevant, while the Wilcoxon Test provides the most interesting results if the sample is not normally distributed. All calculations of Shapiro-Wilk are, like the Wilcoxon Test, performed in Excel.

2.5 Long Term Performance of Bidding Firm

The probability of success in an M&A deal is also influenced by prior performance of both the target and the bidder. The long-term performance of the bidder will be measured through return on sales (ROS) and return on assets (ROA). ROS and ROA are widely used performance measures in accounting studies (King et al., 2004). The accounting measures are taken from one year before the deal and one year after the deal.

2.6 Defining Periods

2.6.1 When Is it Boom and Bust Period?

The authors´ desire is to examine if acquisitions in boom periods differ from acquisitions done in bust and neutral periods in terms of abnormal returns and how behavioural corporate finance can shed light on managerial thinking during those periods. The definition of boom and bust periods will therefore be crucial for the result of this thesis. To measure the temperature on the market, some definitions have been made. Using the same method as Bouwman et al. (2007) and Pangarkar and Lie

(2004) the P/E ratio is compared on monthly basis on OMXS30 on each deal in the sample and then compares that monthly P/E to the average P/E of OMXS30 for the last five years prior the acquisition month. If the P/E of that month is above the five year average it is defined as an above average acquisition (AAA) and if it is below the five year average it is defined as an below average acquisition (BAA). The boom period acquisitions are then calculated as the top half of the AAA deals while bust period acquisitions are calculated as the bottom half of the BAA. The period in between will be classified as neutral. One option to divide the market into cycles is to use GDP curve of Sweden. However, that would be hard to do due to the nature of the curve, which is notable by looking at the chart in Appendix, 7.3. There are alternative methods to divide the cycles into boom and bust periods, like Market to Book ratios, level of the S&P 500, quarterly P/E etc. However, Bouwman et al. (2007) find that using monthly P/E provides the best method for defining business cycles. In addition to Figure 2.2 there is a graph in Appendix 7.3 illustrating all deals in the sample relative to OMXS30.

Figure 2.2: Business Cycle and Conducted M&As
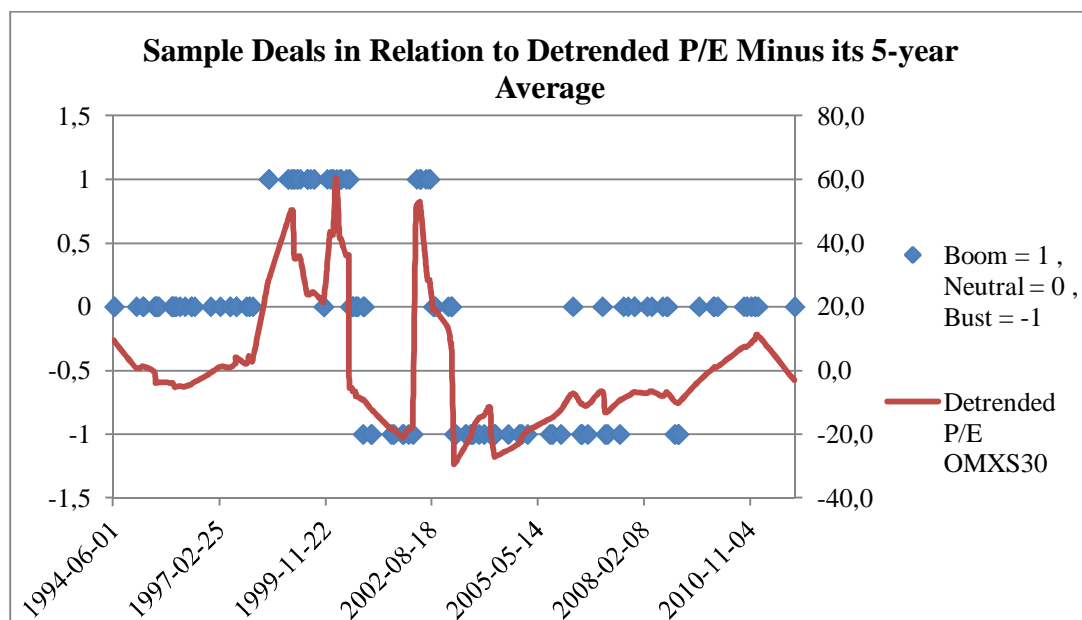
2.6.2 Defining Depth of Cycle

Since the authors did not find any research on M&A performance as a result of the depth of business cycles, a decision had to be made how to define early and late periods. For this thesis the median date of each boom and bust period is used each cycle into one early and one late period.

2.6.3 Summary of Statistics

From June 1994 to December 2011, the authors found 31 boom deals, 38 bust deals and 70 neutral deals. The boom deals represent 22 per cent of the total sample; bust deals represent 27 per cent and the neutral deals make up for the last 51 per cent. The results of the statistical tests will be presented in chapter 4.

2.7 Literature Criticism

Well-known researchers have produced the literature used throughout the thesis, this applies for both the books and articles used. The articles have been found through either Summon[3] or Google-Scholar. The selected articles have been published in well-known journals. The books were found through Lovisa[4] and most of them have been, or is, used as course literature at Lunds Universitet. In cases where the books were found in other ways have the authors made sure that they are written by well known researchers.

2.8 Validity and Reliability

The validity of the results is controlled using control variables; these will help verifying other criteria's effect on M&A performance in order to get higher validity of the results. With this the evaluation should gain some purity trying to measure performance as an effect of boom or bust periods. The event windows should not be overlapping in an event study to avoid problems with clustering. Calculations of variance assume no overlap between event windows over the securities hence no consideration has been taken to covariance. (MacKinlay 1997) There can be some overlap in this study because of the high frequency of M&As during certain periods; this should not influence the results of the study to a greater extent since the data sample is quite big. With the time frames chosen for the event windows there will be risk of disruption of the results. The authors are aware of this and have a strong belief

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[3] Summon is a search engine provided by Lunds Universitet
[4] Lovisa is the search engine for the libraries at Lunds Universitet

that the long-term performance of an M&A will be affected by other factors but the market reaction. Hence the event window is set to T+260 days. To increase the validity of these findings the authors have chosen to include some accounting based measures as well, which can be found in section 2.5. The data collection has been done mainly through the database Datastream. The authors are aware of the fact that it is a secondary source but it is well known and used by many and considered a reliable secondary source. The assumptions behind the market adjusted model that have been used for the event study relies on the efficient market hypothesis. This study is performed on large companies with high stock liquidity, which implies that the assumptions behind the efficient market hypothesis should stand. The overall opinion of the authors is that this study have high reliability and validity.

3. Research and Theoretical Background

In this chapter the theoretical outline is presented alongside relevant research. The structure of the chapter is initially to provide a fundamental and brief view of M&As. This view will be narrowed down to explaining the stock market and share price as determinants of M&A success. Furthermore M&A timing in business cycles will be explained. After that there will be a description of relevant behavioural aspects that could possibly influence managers conducting M&As. In the end of the chapter there is a table summarizing the research relevant to this thesis.

Figure 3.1 Theory outline

M&A in general → Stock Market and Share Price Aspects in M&A → Business Timing and Business Cycle Management → Behavioural Aspects of M&A → Berkshire Hathaway Example → Summary of Research
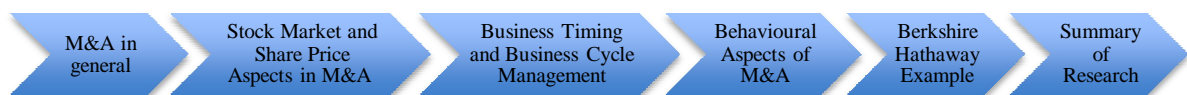
3.1 M&A in General

3.1.1 Why Engage in M&A Activity?

Some might argue that M&As is the most important decision a company can undertake. The number of M&As have increased in the most recent decades, as can be seen in Appendix 7.4.2. As a result, the research has become more extensive and complex in an attempt to fully comprehend the drivers behind M&A success and failure. According to Walker (2000) there are five motivations that drive firms to acquire or merge with other companies:

1. Increased efficiency
2. Asymmetric information exploitment between buying firm and target firm
3. Reduced agency costs
4. Enhanced market power
5. Tax benefits

Gaughan (2007) points out further motives that make firms engage in M&A:

- Expansion/growth motives
- Synergy effects for the buyer
- Diversification

- - M&As allow a company to move into different lines of business
- Financial factors
  - The target firm might be undervalued
- Tax motives
- Improved management
- Pride

M&As is no longer considered to be a phenomenon driven solely by one factor. The range of perception about M&As has increased and so have the literature and the research within the field of M&A. Fields like culture, motivation and leadership are still to be explored further and patterns of drivers behind M&As are still to be found.

3.1.2 M&A Performance

According to Bruner (2002) there are three possible performance outcomes in M&A activity:

- Value created
  - In this scenario the investment exceeds shareholders´ expectations. Wealth will grow above the level that investors require.

- Value conserved.
  - The investment done equals shareholders´ required return. The deal has a NPV = 0 for the shareholders. Note that the shareholders might require high returns, and thus value conservation is according to their preferences of a "normal" return.

- Value destroyed
  - The return is lower than anticipated and the investors are unhappy with the outcome of the M&A.

3.2 Stock Market and M&A

3.2.1 M&A Activity and Stock Market Correlation

There are studies that have concluded that high stock market valuations are correlated with high M&A activity (Javanovic and Rousseau, 2001). High share prices, potential overvalued stock of the buying firms, of course impacts the performance. In the event

of a recession after the M&A an overvalued stock will most likely lose value and the performance of the transaction will therefore be negative. Additionally, cash offers are in general better than stock offers (Loughran and Vijh, 1997) and acquiring with value as an underlying idea, instead of acquiring for glamour, is more value creating for acquiring firm´s shareholders (Rau and Vermaelen, 1998). In that sense misevaluations on the stock market can bring forth more M&A activity. This is supported by the work of Schleifer and Vishny (2003). Their assumption is that the financial markets are either inefficient or irrational. This is based on the fact that there are companies that are valued incorrectly. Those that understand those misevaluations can benefit from buying undervalued targets and potentially sell an overvalued company.

3.2.2 Share Price as a Determinant of M&A Performance

From the target´s perspective it is important to assess how the share price of the bidder will change during the deal period. If the shareholders of the target company know, or feel, that it is likely that the bidder's stock price will fall after the announcement of the deal they should be more reluctant to accept the deal. (Gaughan, 2007, ch. 1) The proposed synergies that the bidding company sees might be overestimated and expectations on the deal could be estimated too highly. Besides looking at stock market performance, there are, according to Cooper (2005), two other ways of measuring M&A success or failure. These two ways are accounting based and sociocultural integration outcome. The majority of the research today is based on stock market performance, same as this thesis.

3.3 Market Timing and Business Cycle Theory

3.3.1 Market Timing Theory

According to the theory markets are in strong form, while the managers in the bidding firms are subjected to hubris in the form of overconfidence and/or overoptimism. An M&A announcement often provides a strong signal to the financial markets and according to Roll (1986), the signal of hubris is embedded in a stock or cash offer. The implications of cash bids vs. stock bids according to the market timing theory are that a pure stock offers signals that the bidding firm's stock is overvalued. Paying a high portion cash signals that the bidder thinks that the target firm is undervalued and that there are higher synergies to be gained, synergies that would then be transferred

to the acquiring firm (Schleifer and Vishny, 2003). Under the market timing theory the bidding firm benefits from purchasing with cash when the amount paid is below the fundamental value of the target firm. Cash can also be used when the acquiring firm believes that their stock is undervalued (Dong et al., 2006). In general, cash financed deals could send double signals to the market:

1. Hubris of the management (hubris hypothesis)
2. Undervaluation of the target firm (market timing hypothesis)

There is evidence that an overvalued bidder is more likely to use stocks as payment in an M&A. It also increases the probability of a bidder being a bidder in the first place and by that increasing M&A activity. Also, it shows that the bidding firms are performing poorly after the announcement of the M&A and subsequent periods after the M&A is made (Gregoriou, 2007, p. 8). This side of the coin, bidder overvaluation, should then be compared to target undervaluation to properly determine the market-timing hypothesis.

3.3.2 Existing Research on Strategy and M&A Timing Across Cycles

In an article by Lubatkin and Chatterjee (1991) the authors imply that it is meaningless to investigate strategy and performance without taking the economic environment into account. They also find that related diversifiers earn higher returns than unrelated diversifiers during periods of market decline; hence they can manage a portion of the systematic risk even if it cannot be totally eliminated. Lubatkin and Chatterjee (1991) also suggest that this leads to higher performance and lower cost of capital and risk. Furthermore they suggest that acquiring targets with related strategy during bear cycles is correlated to excess returns. An implication for this, as they suggest, is that managers can use this knowledge to gain advantage over their competitors during times of economic uncertainty by being first movers and by that saying that cycles should be of high importance when formulating strategies. According to Bruner (2005), the worse deals are associated with "hot" equity markets.

Again, one must remember that the theory of merger waves differs. Talking about merger waves the neoclassical theory suggests that industry shocks, i.e. changes in technology, regulation etc., is the driving factor of merger waves (Chidambaran et al., 2009). This theory suggests that the returns will be higher prior to a merger wave than

during or after one. Taking the behavioral theory into account, it concludes that merger waves occur when there is a tendency for overvaluations in the market. This theory also states that both the announcement returns and the long-term returns of the acquiring firm's shareholders are negative in such a scenario. Chidambaran et al. (2009) concludes that acquirers are valued higher during merger waves and that the premium paid to acquire targets also is higher during periods of high M&A activity. They also found support of more stock based purchases during the same period. Looking at the returns for the acquiring firm it is lower for stock based purchases, and it is also lower for acquisitions in booming merger markets. They found the results to be linked to the behavioral research by Schleifer and Vishny (2003). One of the earliest studies on performance in business cycles was conducted by Kusewitt (1985). He found, amongst many things, that timing relative to the market cycle is negative related to performance, i.e. that M&As are more likely to yield positive returns during economic decline. Hence M&As conducted during bust periods perform better compared to M&As executed in boom periods. He also concluded that the level of M&A activity is larger during high market valuations.

According to McNamara et al. (2008) acquisitions occur in waves, which is concluded earlier in the thesis. However, they also found support that firms acquiring early in merger waves have an advantage compared to those acquiring late. The performance is in other words higher for firms that acquire early within a merger wave than for firms acquiring at the peak of it. McNamara et al. (2008) find those firms acquiring late in a merger wave, with lower performance than early acquirers, to be victims for the bandwagon effect. In addition to the previous mention research Lie and Pangarkar (2004) found that timing M&A in market cycles is important. They found that acquisitions, 115 in total performed by Singapore firms from 1990 to 1999, undertaken in low market conditions experienced higher CAR for both related and unrelated acquisitions compared to similar acquisitions made in hot markets.

3.3.3 Wealth Effects for Acquiring Firm Shareholders

The wealth effect in different M&A scenarios are well explored in research. In on of the bigger studies on M&A performance King et al. (2004) found that performance is unaffected by M&A activity and even negative in some extent. There is additional research that has found negative, or insignificant, wealth effects to acquiring firms,

e.g. Chatterjee (1992) finds support that acquisitions are value destroying in all cases for the acquiring firm´s shareholders. Bruner (2002) found that M&As are satisfying for investors in 60-70 per cent of all cases, which imply that M&As actually do pay on average.

3.3.4 Business Cycle Management (BCM)

BCM is not the most developed and highlighted field within M&A research. However, it is of importance due to this thesis link to performance in business cycles. Business cycles occur without a doubt in markets, which creates times of economic expansion and recession. Described in articles, such as Navarro et al. (2010), BCM is linking business cycles to managerial decisions. When those decisions are made in a timely matter, countercyclical, the performance of the firm should be improving. Dhalla (1980) supports this view by arguing that firms can take advantage of the swings in the markets to outperform their competitors. According to Dhalla firms can benefit from lower costs of marketing and expansion in recession periods to boost performance. Greer (1984) concludes that hiring employees during recessions would be beneficial due to lower wages paid and higher competence of the employees. Empirical studies that link BCM to M&A performance are scarce and the theory focuses mainly on marketing, leverage, capital expenditures and hiring employees during market cyclicities. There is an article by Lubatkin and O'Neill (1988), which concludes, "certain types of mergers completed in certain economic contexts can enhance the wealth of stockholders in the acquiring firms". In the article by Navarro et al. (2010), they found preliminary evidence that countercyclical management actions such as investments are associated positively with the performance of the investigated firms.

3.4 Behavioural Aspects of M&A

3.4.1 Behavioural View of M&A

The behavioural area of M&A research is growing strong. Under this field of research managerial decisions are viewed in the light of personal characteristics that affect M&A activity. Looking further at motives behind M&A hubris can be one explanation according to Roll (1986). Hubris in this case takes the form of overoptimism or/and overconfidence. To simplify, hubris basically leads to a misevaluation of the target company. The valuation is above the fair value of the

target, which leads to the acquirer overpaying. This hubris hypothesis states that there are no synergies available to the buying firm and that the premium paid stays with the target firm's shareholders. A lot of M&As are performed with the belief in large synergy creation and by capturing that value the acquiring firm can pay more for a target firm that can give rise to such synergies (Hitt et al., 2001). As mentioned previously the definition of synergies is that it makes the combined "value" larger than the sum of two companies individually and this is because of cost reductions or income increases due to a higher grade of operational efficiency, market power or other (Seth et al., 2000). On average, the higher the potential synergies, the higher the premium to get a hold of them. The higher the premium, the higher the return needs to be to justify the high premium. Even a small premium cannot be justified without synergies being realized (Hitt and Pisano, 2003). Looking further at hubris, management who know they have overpaid for a target will be more likely to search for the fastest way of generating money to justify the premium by cutting costs or taking other short-term measures that might not be beneficial in the long run. It can also result in asset divestitures, which often proves to be a failing strategy due to assets being sold below the book value (Krishnan et al., 2007). Decisions that have to be made by the management in an M&A often require large efforts and the CEOs and the boards of the companies must withstand high pressure from the market to realize value.

"Why did CEOs do so many deals . . . ? The bull market was a big reason,
of course. Executives were brimming with confidence and rich stocks."
(Business Week, 14 October 2002, p. 68)

3.4.2 Managerial Herding

One theory explaining M&A performance is managerial herding. Some scholars argue that merger waves occur because of managerial herding in the firms conducting M&As (Goel and Thakor, 2008). If managers see that their competitors are achieving higher return due to higher M&A activity they are more likely to engage in M&A activity themselves. If the same managers later on notice that their competitors stopped or slowed down their M&A activity, then the managers will follow their example and stop their M&A activity as well. Research by Rhodes-Kropf and Viswanathan (2004) supports this by saying that merger waves only end when the

market has learned from experience by relating to the success rate of previous acquirers. The hypothesis also predicts that M&A performance is more likely to be worse for late movers during merger waves than for first movers. This hypothesis has some support, e.g. by research provided by McNamara et al. (2008). Since merger waves tend to correlate with market valuations, the managerial herding theory is important to this thesis.

3.4.3   Pricing Points and Anchoring

Estimating pricing points is originally a subfield within marketing research. In that area, demand is viewed in the light of sensitivity to different price settings when it comes to retail pricing. In M&A, the bidding firm wants to propose a bid as low as possible for the target firm. In order to get the approval of the target firm´s shareholders the bidder is aiming to offer a bid that will lead to a successful M&A deal. Theory of Kahneman and Tversky (1979) identify wealth and levels of belongings as drivers of highest possible utility. In addition, their theory states that this perceived utility changes relative to reference points, e.g. norms. Having pricing points as reference makes investors more reluctant to sell stocks or financial assets showing losses than to similar assets showing gains (Birru, 2009). Reference point theory is complementary to other theories of M&A. However, it is useful when it comes to viewing premiums paid to acquire firms. The link between M&A activity and stock market conditions can therefore be explained. This is in line with business cycle research done by Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004), who all found M&A activity to be correlated to misevaluations on markets.

3.4.4   The Bidder´s Perspective

In the attempt to acquire a target the psychology of the bidder can be affected by biases such as anchoring, mentioned in section 3.4.3, and adjustment, phenomenons mainly associated with Tversky and Kahneman (1974). Basically in an M&A world, it says that a final estimate, such as determining target firm´s enterprise value, is based on a potential irrelevant and perhaps salient initial value. The estimation the bidding firm makes of the target firm´s value will later reflect the amount offered in the M&A process. In the estimations it is common to use 52-week high stock price as a counter point in the valuation process. By stating a 52-week high the bidding firm assumes

that old share prices are realizable even in the future, thus making it possible to reach them again after the acquisition is made. Reference pricing can in that extent be connected to M&A occurrences like merger waves, deal success and bidding prices.

3.4.5   **Managerial Influential**

Managers responsible for M&A decisions are highly affected by external factors and a CEO´s career can rely on the success of an M&A (Aktas et al., 2005). Research has found that the acquiring firm's abnormal return declines by every deal made (Conn et al., 2004). This would imply that CEOs and managers do not learn from doing M&As. In reality this is hard to assess and it is more likely to believe that managers are instead rational not risk seeking. It is not easy to assess which bias is the dominating one when conducting M&As. A bias worth mentioning is winner´s curse, which can be an example of hubris of the managers in the acquiring firm, something that often lead to costly acquisitions.

3.5   **A Practical Example**

3.5.1   **Berkshire Hathaway Acquisition Criteria**

In the beginning of this thesis the reader was introduced by a quote of Warren Buffet:

> *"When the phone doesn't ring, you'll know it's me."*

The success story of Warren Buffet and Berkshire Hathaway is well known in the field of finance and M&A. This company can be used to further point out what creates value in M&A transactions as well as discussing biases that can lead to unsuccessful M&A decisions done by managers. The opening quote also gives an indication of when M&As should be conducted in the market cycles. There is no doubt that Warren Buffet is of the opinion that M&As should not be performed in boom periods. Looking further at Berkshire Hathaway they have six criteria for target firms that have to be fulfilled before an investment is discussed:

1. Target firms have to have at least $ 74 million of earnings, pre-tax
2. The earnings power must be strong
3. Return on equity (ROE) has to be strong, meanwhile having low leverage in the balance sheet

4. The management in the target firm must have potential and stay after the investment is made

5. Berkshire Hathaway only invests in understandable businesses

6. An offering price has to be known

All of the takeovers should be friendly and the method of payment is mainly cash. Berkshire Hathaway does not engage in auctions while investing in companies. Looking at the size of the investment it is usually in the range of $ 5 - 20 billion. Another thing worth mentioning is that Berkshire Hathaway always approaches the companies in which they would like to invest, not the other way around. After an investment is made the management is kept alone and still makes the operating decisions and the excess cash is transferred to headquarters to prevent overinvestment problems (Berkshire Hathaway annual report 2011).

3.6 Summary of Research

The research field of M&A is extensive. To comprehend M&A it is important to understand why they occur in markets. It is also important to understand the stock market and share price correlation to M&A research. Behavioural theories are described as an extra tool that can clarify and help understand the research field and findings. For this thesis and M&A performance in business cycles the authors find the following findings relevant:

Table 3.1 Summary of Research

Authors	Research field	Conclusion
Kahneman and Tversky (1979)	Behavioural	Personal wealth and level of belongings determine utility
Roll (1986)	Behavioural	Hubris can affect M&A activity
Sirower (1997)	Buyer/Seller	The relatedness between buyer/seller has increased. Premiums has become higher
Cartwright and Cooper (1996)	Integration form	Horizontal integration has increased on behalf of vertical integration
Cheng (2006)	Merger waves	Market misevaluations increase M&A activity and alter the behavior in takeover contests
Goel and Thakor (2008)	Merger Waves	Merger waves occur due to managers mimicking of first moving firms in the industry
Javanovic and Rousseau (2001)	Merger waves	High stock market valuations = higher level of M&A activity

Rhodes- Kropf and Viswanathan (2004)	Merger waves	Market misevaluations can set forth a more active M&A market. Merger waves end with the market learning from previous bad experiences
Schleifer and Vishny (2003)	Merger waves	Misevaluations on the stock market can give rise to more M&A activity
Bouwman et al. (2007)	Performance	Long run performance of firms acquiring during low-valuation markets are higher than for those firms acquiring during high-valuation markets
Chatterjee (1992)	Performance	Acquisitions results in insignificant or negative wealth effects for the acquiring firm
Bruner (2002)	Performance	From a bidder´s perspective 20-30 percent of all transactions generate excess returns. 60-70 percent of all M&A deals are satisfying for the investors
Lubatkin and Chatterjee (1991)	Performance	It is meaningless to instigate strategy and performance without taking the economic environment into account. Acquiring targets with related strategy in bear markets is correlated to excess returns
Chidambaran et al. (2009)	Performance	Lower returns for acquisitions in booming merger markets
King et al. (2004)	Performance	M&A activity is uncorrelated to higher returns of the acquiring firm. M&As are not value creating.
Kusewitt (1985)	Performance	Acquisition timing relative to the market cycle is negative correlated to performance
McNamara et al. (2008)	Performance	Firms acquiring early within an industry acquisition wave achieve positive returns, whereas the market punish later acquirers.
Pangarkar and Lie (2004)	Performance	Announcement returns are higher during high-equity market cycles than low-equity market cycles
Banerjee (1992)	Performance	Late movers in merger waves are more likely to experience unprofitable acquisitions than early movers, even though they benefit of information early acquirers
Ravenscraft and Scherer (1987)	Profitability	M&A is not profitable tool to gain market power or more favorable market position
Capron (1999)	Relatedness	Value in M&A is created through high Strategic combination between acquiring and the target firm

4.   Results and Analysis

In this chapter the results are presented and analysed starting with the accumulated results of the boom periods. After that the accumulated results for neutral and bust periods are presented. In the third step boom and bust results are compared to neutral periods and to each other. Additionally, to test the hypotheses, the results of deals done early or late in business cycles are compared. The last part of this describes accounting data results.

4.1   Introduction to the Results

The authors did collect a large amount of data and information of different deals made between 1994 and 2011: When the data had been analyzed it was found to be very homogenous in terms of relatedness and origin of the target company and if it was a horizontal or vertical deal. This will be describer further in section 4.6. In the following section the results from the final data sample will be presented. All the testing is performed with a 95 per cent confidence interval, which provide an alpha value of 0,05.

4.2   Cycles Periods

4.2.1   Boom Period

In this section the results for acquisitions performed in boom periods are displayed and analyzed. The table below describes results for the three event windows used in this thesis.

Table 4.1 CAAR – Accumulated for all Boom Periods

Event Window	CAAR	Students t-test			Wilcoxon	S-W
		T	T-crit	P	P	P
(1) -2 to +2	-0,0019	-0,2122	2,0423	0,8334	0,860	0,005
(2) -6 to +24	-0,0130	-0,9663	2,0423	0,3416	0,405	0,035
(3) -30 to +260	-0,1108	-1,5756	2,0423	0,1256	0,961	0,001

The S-W results on the right side of the table indicate that the sample cannot be assumed to follow a normal distribution for any event window, hence the Wilcoxon results should be used in favour of the results of Student´s t-test. The Alpha value is

0,05 for all tests. Looking at the results of the Wilcoxon Test it suggests that the null hypothesis is accepted for all event windows, i.e. that there are no significant negative abnormal returns in doing M&As in Boom periods.

4.2.2 Neutral Period

In this section the results for acquisitions performed in neutral periods are displayed and analysed. This is done to get an additional benchmark for the result of the boom and bust periods. The table below describes results for the three event windows used in this thesis.

Table 4.2 CAAR – Accumulated for all Neutral Periods

| Event Window | CAAR | Students t-test | | | Wilcoxon | S-W |
		T	T-crit	P	P	P
(1) -2 to +2	-0,0047	-1,0579	1,9949	0,2937	0,142	0,001
(2) -6 to +24	-0,0064	-0,7698	1,9949	0,4440	0,228	0,001
(3) -30 to +260	-0,0497	1,3151	1,9949	0,1928	0,721	0,001

Starting with the results of the S-W test it shows that none of the results in the event windows are normally distributed. The results to look at are the ones from the Wilcoxon Test. Since the results of the Wilcoxon are above 0,05 for all event windows it can be concluded that M&A done in neutral periods do not show any significant abnormal returns. The null hypothesis is thereby accepted.

4.2.3 Bust Period

In this section the results for acquisitions performed in bust periods are displayed and analysed. The table below describes results for the three event windows used in this thesis.

Table 4.3 CAAR – Accumulated for all Bust Periods

| Event Window | CAAR | Students t-test | | | Wilcoxon | S-W |
		T	T-crit	P	P	P
(1) -2 to +2	0,0045	0,6981	2,0262	0,4894	0,147	0,002
(2) -6 to +24	0,0499	3,4032	2,0262	0,0016	/	0,058
(3) -30 to +260	-0,0456	0,9580	2,0262	0,3443	/	0,447

Looking at the S-W results on the right side of the table it indicates that the sample distribution can be assumed to be normally distributed for the second and third event window but not for the first event window. The Wilcoxon results should then be be used in favour of the results of Student´s t-test only on the first event window. By looking at the results of the Wilcoxon Test it suggests that the null hypothesis is accepted for the first event window, i.e. that there are no significant positive abnormal returns in doing M&As in Bust periods. For the second event window the results of the t-test imply that investors gain abnormal returns close to five per cent in bust periods. The t-test result on the third event window supports the null hypothesis.

4.2.4 Analysis of Cycle Periods

The results indicate that there cannot be any significant abnormal returns in any business cycle except for the second event window in bust periods. For the second event window, -6 to +24 days related to the announcement, there are significant abnormal returns close to 5 per cent. This is in line with Bouwman et al. (2007). They found that the long-run performance for acquiring firms during bear markets is higher than for those acquiring during high-valuation markets. The results indicate however, that for the longest event window -30 to +260 days, there are insignificant abnormal returns. For the boom periods all event windows indicated no abnormal returns. The abnormal returns of the second event window in bust periods support the findings of Lubatkin and Chatterjee (1991), who found that firms always should evaluate the economic environment when undertaking strategic decisions. Since this thesis came up with insignificant results for the event windows during boom periods the research of Chidambaran et al. (2009) cannot be supported. As the results of the table above indicate the abnormal returns are lower for boom periods than for bust periods.

Kusewitt (1985) found market timing to market cycles to be negative correlated to performance. For the sample there are indications that support that research. The significant abnormal return for bust periods in the second event window in this thesis also support the research of Pangarkar and Lie (2004), who found that performance of acquiring companies to be better during low market cycles. However, it should be pointed out that the results are insignificant, and therefore not valid, for all event windows except the second event window in the bust period. Chatterjee (1992) suggest that acquisitions results in insignificant or negative wealth effects to the

acquiring firm´s shareholders. This theory is partially rejected due to the significant findings of abnormal returns for the second event window in bust periods. Finally, the results of section 4.2.3 contradict the research of King et al. (2004). They found that M&As are not value creating.

4.3 Comparing Business Cycles

In section 4.2 the authors tested each business cycle individually. In this section the business cycles are compared to each other in order to analyse whether it is more beneficial to do M&As during certain business cycles and if the significance of the t-test and Wilcoxon Test differ from testing each individual business cycle

4.3.1 Boom vs. Bust Period

The first test will compare boom and bust periods to each other in order to analyse whether it is more beneficial to do M&As during certain business cycles.

Table 4.4 CAAR – Boom vs. Bust Period

Event Window	CAAR Boom	CAAR Bust	Students t-test			Wilcoxon	S-W
			T	T-crit	P	P	P
(1) -2 to +2	-0,0019	0,0045	-0,5821	2,0025	0,5628	0,840	0,002
(2) -6 to +24	-0,0130	0,0499	-3,1621	1,9960	0,0024	/	0,120
(3) -30 to +260	-0,1108	-0,0456	-0,1549	1,9905	0,8773	0,578	0,001

By looking at the S-W results on the right side of the table it indicates that the sample distribution cannot be assumed to follow a normal distribution under the first and third event window, hence the Wilcoxon results should be used in favour of the results of Student´s t-test on those two event windows, which do not reject the null hypothesis. In the second event window the S-W results is above 0,05 and the t-test is low enough to provide significance, by that meaning that there is comparability between boom and bust periods. This implies that it is better to perform acquisitions in bust periods compared to boom periods in the time span of the second event window and that the difference in abnormal returns are 6,29 per cent.

4.3.2 Bust vs. Neutral Periods

By comparing bust and neutral period acquisitions the gain is better comparability of performance between business cycles.

Table 4.5 CAAR – Bust vs. Neutral Periods

Event Window	CAAR Bust	CAAR Neutral	Students t-test			Wilcoxon	S-W
			T	T-crit	P	P	P
(1) -2 to +2	0,0045	-0,0077	1,1282	1,9822	0,2617	0,041	0,011
(2) -6 to +24	0,0499	-0,0144	1,5496	1,9870	0,1248	0,001	0,018
(3) -30 to +260	-0,0456	-0,0632	0,0583	1,9921	0,9537	0,473	0,001

Since the S-W results are less than 0,05, for all event windows, it is again better to use the non-parametric Wilcoxon Test in favour of the parametric t-test. For the first and second event window the results, calculated with Wilcoxon, are below 0,05. This is saying that the abnormal returns are higher in bust periods than in neutral periods for the first two event windows. For the last event window the abnormal returns are not significantly different during bust and neutral periods. For the last event window the null hypothesis is accepted.

4.3.3 Analysis of Cross Cycle Periods

In this section the results indicates significance for three event windows. The first significant result is a negative abnormal return, 6,29 per cent, for acquiring in boom periods compared to bust periods in the second event window. For the other two event windows the results are insignificant, yet negative. The other two significant results occurred measuring bust periods to neutral periods. For the first event window the results indicated a very small positive abnormal return in favour for the bust period adding up to a difference of 1,22 percent and for the second event window the abnormal returns add up to 6,43 per cent. This indicates that it is beneficial for firms' shareholders to perform acquisitions in bust periods rather than neutral periods under the first and second event window. When viewed in total, the results of this testing is in line with the findings of Lubatkin and Chatterjee (1991), who found that the economic environment has to be consider when undertaking strategic decisions like M&As. The result indicates that M&As can be performed in bust periods with higher abnormal returns than M&As in neutral and boom periods. Again, the finding of Kusewitt (1985) becomes accepted. The findings of Pangarkar and Lie (2004), which only measured high against low market performance of M&As, are accepted for the second event window in the comparison between boom and bust periods. The test

results for section 4.3 adds another aspect, due to the results of the first two event windows in table 4.5, to the research of Pangarkar and Lie. Their research did not compare low market valuations to neutral market valuations. Due to some significant positive abnormal returns in section 4.3 the findings of King et al. (2004) can be rejected.

4.4 Business Cycle Timing Results

To test the hypotheses, i.e. if the abnormal returns are higher (lower) for the acquiring firm when the acquisition is performed late within a bust period (boom period). According to the method outlaid in chapter two there are three boom periods and four bust periods during the sample period. In this section the authors decided to exclude neutral periods and only focus on boom and bust periods. More descriptive figures of the different business cycle periods with corresponding deals in each period can be found in Appendix (7.7.1 – 7.7.7) and in Figure 2.2.

4.4.1 Late Boom periods vs. Early Boom periods

To be able to answer hypotheses testing need to be done on performance, both early and late, in the different business cycles, starting with comparing the first half against the second half of each business cycles itself. This will test whether it is more beneficial to perform M&As at an early or late stage in the business cycle.

Table 4.6 CAAR – Late Boom vs. Early Boom Periods Accumulated

Event Window	CAAR Early	CAAR Late	Students t-test			Wilcoxon	S-W
			T	T-crit	P	P	P
(1) -2 to +2	0,0066	-0,0113	1,0964	2,0595	0,2833	0.348	0,005
(2) -6 to +24	-0,0069	0,0016	-0,3043	2,0687	0,7636	0,678	0,035
(3) -30 to +260	0,0306	-0,1930	1,7035	2,0739	0,1026	0,230	0,001

Starting with the results of the S-W test it concludes that none of the results in the event windows can be normally distributed. The results to be looking at are the ones from the Wilcoxon Test. Since the results of the Wilcoxon is above 0,05 for all event windows it can be concluded that M&As done in late boom periods do not differ significantly from the ones done in early boom periods in terms of abnormal returns. The null hypothesis is thereby accepted. These results do not support H1 nor H2.

4.4.2 Late Bust vs. Early Bust periods

The previous table tested acquisitions done in late boom periods against early boom periods. In the table below the same parameters are tested but this time for bust periods.

Table 4.7 CAAR – Late Bust vs. Early Bust periods Accumulated

Event Window	CAAR Early	CAAR Late	Students t-test			Wilcoxon	S-W
			T	T-crit	P	P	P
(1) -2 to +2	-0,0053	-0,0017	-0,2953	2,0739	0,7706	0,678	0,002
(2) -6 to +24	-0,0078	-0,0069	-0,0305	2,0739	0,9759	/	0,058
(3) -30 to +260	0,0331	0,0891	-0,7157	2,0484	0,4801	/	0,447

The results of the S-W test conclude that the samples in the first event window cannot be normally distributed. However, the results from the second and third event windows assume normal distribution. For the first event window the result to be looking at is the Wilcoxon one. Since the p value is above 0,05 the null hypothesis is not rejected and therefore there are no significant difference in abnormal returns doing M&As in late vs. early bust periods in the first event window. For the second and third event windows the t-test is appropriate to look at. The t-test suggests no significant difference in abnormal returns under those two event windows, i.e. no significant difference in doing acquisitions in late or early bust periods. Hence there is no evidence of either H3 or H4.

4.4.3 Late Boom periods vs. Late Bust periods

This test will assess whether acquisitions in late boom periods differ in abnormal returns from acquisitions done in late bust periods.

Table 4.8 CAAR – Late Boom vs. Late Bust Periods Accumulated

Event Window	CAAR Late Bo	CAAR Late Bu	Students t-test			Wilcoxon	S-W
			T	T-crit	P	P	P
(1) -2 to +2	-0,0011	-0,0021	-0,6687	2,0518	0,5093	/	0,794
(2) -6 to +24	-0,0022	-0,0073	0,2485	2,0518	0,8056	/	0,082
(3) -30 to +260	-0,1934	-0,0892	-2,2403	2,0860	0,0366	0,247	0,034

Since the S-W results are more than 0,05 in the first and second event window it is better to use the parametric t-test in favour of the Wilcoxon test. For the third event window the S-W result is below 0,05, saying that it is better to use Wilcoxon test. There is no significance shown in any of the event windows suggesting no difference in abnormal returns. The results are not sufficient to reject the null hypothesis.

4.4.4 Early Boom periods vs. Early Bust Periods

The last testing for differences in abnormal returns is in early boom periods compared to early bust periods.

Table 4.9 CAAR – Early Boom vs Early Bust Periods Accumulated

Event Window	CAAR Early Bo	CAAR Early Bu	Students t-test			Wilcoxon	S-W
			T	T-crit	P	P	P
(1) -2 to +2	0,0066	-0,0053	0,8208	2,0930	0,4219	0,637	0,001
(2) -6 to +24	-0,0069	-0,0078	0,0459	2,0452	0,9637	/	0,503
(3) -30 to +260	0,0306	0,0331	-0,0296	2,0595	0,9766	0,230	0,001

By looking at the S-W results on the right side of the table it indicates that the sample distribution cannot be assumed to follow a normal distribution under the first and third event window, hence the Wilcoxon results should be used in favour of the results of Student´s t-test on those two event windows. The results of the t-test show no significance though. In the second event window the S-W results is above 0,05 and the t-test is the relevant one. However, the result is not high enough to provide significance, by that meaning that there is no significant difference in abnormal returns for the second event window in early boom periods compared to early bust periods.

4.4.5 Analysis of Performance Relative Depth of Cycles

As described in the beginning of this thesis and in chapter 3, the research on performance in different depths across business cycles is scarce. Rhodes- Kropf and Viswanathan (2004) described merger waves as the results of a bandwagon effect and that those who perform acquisitions in the beginning of those waves benefit while those companies who are performing acquisitions later experience negative results. McNamara et al. (2008) made a study were they concluded that the returns would

decline as a merger wave progresses. Again, this thesis is not focusing on merger waves per se but rather on the value of the market to determine performance. The results of McNamara et al. (2008) cannot be comparable to the results of this thesis unless there is absolute correlation between merger waves and the equity market, which there is not. The calculations in this thesis implied three boom periods between 1998-06-01 and 2002-07-30. Research on merger waves concludes that three merger waves did not occur during this period (Lipton, 2006).

Analyzing the results of this thesis it suggests no significant results comparing the first half against the second half of M&A performance in bust and boom periods. One of the results, i.e. the third event window comparing late boom against late bust periods had an S-W result of 0,034. If the value had been higher than 0,05 the t-test would have proved significant negative returns of 19 per cent of deals performed in late boom periods compared to deals performed in late bust periods. Other insignificant results are that late boom periods yield more negative results than early boom periods and that acquiring in late bust periods are better than acquiring in early bust periods. If the sample would have been larger the results might have been normally distributed and therefore significant, saying that it is worse performing M&As in late boom periods compared to late bust periods and that early bust periods yield higher return than early boom periods. According to Roll (1986) the results can be connected to hubris of managers and other biases making acquiring firms more prone to make unsuccessful deals. Due to insignificant results in section 4.4 this thesis can neither support nor contradict the research by Banerjee (1992), in which late movers in merger waves are more likely to experience unprofitable acquisitions than early movers. Again, it is important to comprehend that this thesis is taking business cycles as measuring points, and not merger activity per se. In that sense the results are incomparable to the few related studies on business cycle timing and acquisition performance across the cycles.

4.5   Long run Performance

Accounting data has been included in the thesis to measure performance. The main objective is to see whether the long run performance of the acquiring firm is affected by its M&A activity. This is used as a complementary measure to the event study. The findings from the statistical tests are presented bellow. First of all did the authors

choose to exclude ROS simply because the correlation between ROS and ROA was close to 1(0,999) with a significance level of 95 per cent.

4.5.1 Long Run Performance of All Deals

Table 4.10 ROA Before and After an M&A

ROA	Before	After	Students t-test			Wilcoxon	S-W
			T	T-crit	P	P	P
All	0,108	0,093	2,170	1,969	0,031	0,006	0,001
Boom	0,102	0,079	1,970	2,003	0,054	0,299	0,001
Bust	0,097	0,101	-0,271	1,994	0,787	0,906	0,003

As shown in table 4.10 the sample does not follow a normal distribution according to the S-W test. As a result of that the Wilcoxon Test is appropriate to use in favor of the Students t-test. The p-value of the Wilcoxon test for all deals is at a level where the null hypothesis is rejected and the difference between ROA before and after the deals is significant. The tests shows a 1,5 per cent higher ROA before the transaction compared to the ROA after the transaction. When the sample was divided into boom and bust periods no significance were found, hence the null hypothesis is accepted and no mean difference is proven.

4.6 Control Variables

After the data was collected the authors found a great degree of homogeneity in the sample. Hence a more developed analysis including the different variables would have been point less.

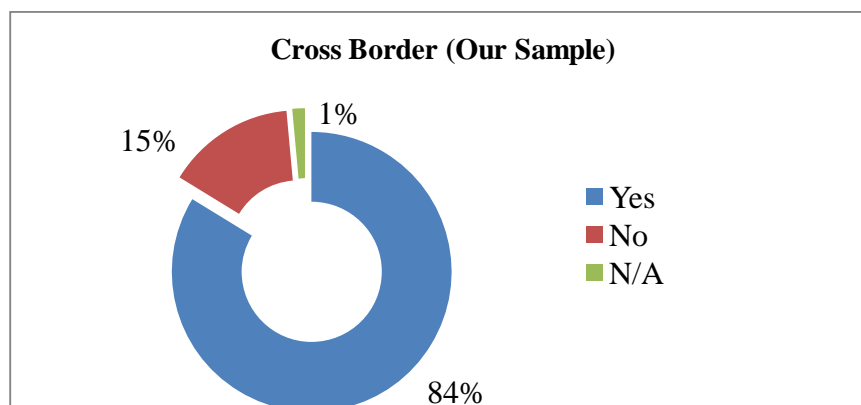*Figure 4.1 Control Variable / Cross Border*
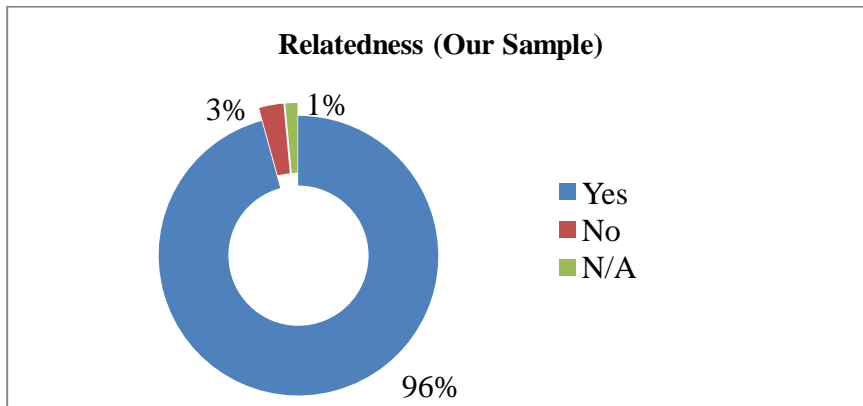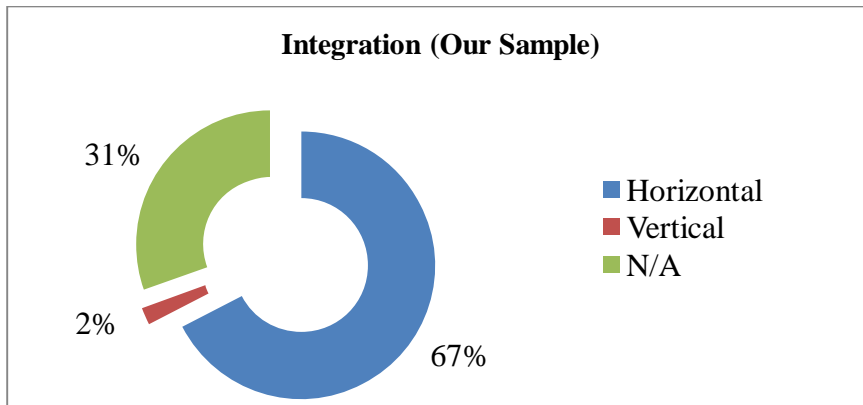
Figure 4.2 Control Variable / Relatedness

Relatedness (Our Sample)

- Yes
- No
- N/A

3%   1%

96%

Figure 4.3 Control Variable / Integration Form

Integration (Our Sample)

- Horizontal
- Vertical
- N/A

31%

2%

67%

5.   Conclusion

This chapter contains the final discussion of the test results. The opinions of the authors will be explained as well as final part with ideas and suggestion about interesting future research fields for studies about M&A performance across business cycles

5.1   End Discussion

The authors wish to remind the reader of what the aim of this thesis is. Below is the main question and the four hypotheses presented.

> ***To what extent have firms on OMSX30 earned abnormal returns of M&As across the business cycle?***

> ***H.1   M&As carried out late within a boom period yield a higher risk of negative abnormal returns***

> ***H.2   M&As carried out early within a boom period yield a lower risk of negative abnormal returns***

> ***H.3   M&As carried out late within a bust period yield a higher chance of positive abnormal returns***

> ***H.4   M&As carried out early within a bust period yield a higher risk of negative abnormal returns***

The purpose of this thesis is to measure performance in terms of depth of business cycles and also to measure performance across such cycles. By an event study the thesis tested the hypotheses with the use of abnormal returns. The results indicate that it is more beneficial to perform acquisitions in bust periods. However, the results of the testing did not verify any of the hypotheses. M&A literature on the topic of business cycle timing of acquisitions is very scarce. Bouwman et al. (2007) found that long run performance of M&As is higher when conducted during bust periods but they did not test performance as a result of the depth of a business cycle. The findings of this thesis also support the research of Pangarkar and Lie (2004), in the sense that M&As undertaken in bust periods perform better than M&As undertaken during

boom periods. There is even less literature about at what time to acquire within the business cycle to gain highest returns like this thesis tested and there is no study performed on the Swedish OMXS30 index, which makes the results of this thesis additive to existing research such as Bouwman et al. (2007), Pangarkar and Lie (2004) and Kusewitt (1985) who all found M&A timing to be best adopted in low-market cycles. Additionally, there is a vast range of literature that implies that M&As are not value creating, e.g. King et al. (2004). Regardless of that, many companies pursue their M&A trajectory. The results of this thesis indicate that M&A performance is connected to market cycles. One obvious drawback with measuring the positive or potential negative effects of M&As is that is it impossible to assess how the acquirer would have performed under the scenario that the acquisitions had not occurred. One should remember that stock market returns only make up for one aspect in terms of M&A success. Apart from measuring the market there can be additional studies on integration or strategy to add different dimensions. Reactions of the market might not correlate to similar reactions from stakeholders of the companies. M&A are in most cases large economic decisions for managers to take. In some cases M&A activity seems to be driven by psychology, which might be hard to grasp at first. However, the authors believe that adding behavioral aspects of managers to M&A activity is important.

In general, high market-valuations correlate to a higher level of M&A activity. The learning from those studies is that managers spend more when the economic environment is good. At a personal level, it makes sense. The eagerness to spend money is correlated to money available to spend. If you have money, you spend money the authors of this thesis suggest. Managers might not be as careful when conducting M&A during boom periods as they might be during bust periods. Overestimations about synergies, which Sirower (1997) did research on, might be one factor causing M&As to fail during boom periods. There are indications in the results of this study, i.e. that there was more deals in bust periods than in boom periods, that managers have learned. M&A activity of the firm on OMXS30 is not fully correlated with the business cycle, which contradicts the findings of e.g. Javanovic and Rousseau (2001). It is also important to comprehend the hubris and overoptimism theory of Roll (1986) in order to understand M&A activity in boom periods. The authors believe that overpaying in boom periods is strongly influenced by hubris of

managers in the acquiring firms. There is one last important factor to be considered for high stock market M&As. If an overvalued stock is used to purchase a target and the stock price declines after the deal is completed, should that then be counted as a failed M&A?

Naturally, there are also doubts about how to best measure performance. This thesis had the bidder´s view, but it might be interesting to measure the bidder and the target as two stand-alone companies after the M&A to better capture wealth effects. However, it should be pointed out that information about private companies is very hard to get hold of compared to public companies and that the operating results of the target firm is very often embedded in the total result of the bidding company. There are also complications on what time frame to use when measuring M&A success. For this thesis the authors use three event windows. The results of this thesis provide rather strong data on performance across business cycles and performance as a factor of the length of the cycles. The authors would like to point out that managers should not only undertake acquisitions in bust periods, which might impact the overall strategy of the firms they operate, but to provide them evidence of what factors that provide the best return.

5.2   Implications for Further Research

This thesis has made some conclusions on M&A performance across business cycles. As known, the research field of M&A is extensive. The following adjustments could potentially be done to improve the results of future research:

- The results in this thesis are based on the Swedish OMXS30. It would be interesting to see similar studies conducted on other European stock-indexes to get a benchmark for this thesis.

- This thesis did not take other variables into account. The sample had a high degree of homogeneity regarding relatedness between buyer and target firm, horizontal integration form and almost all deals were private. One future area of research might be to compare todays more "related" deals with deals done some decades ago to search for differences in abnormal returns across the business cycles.

- It would be interesting to have a bigger sample size, which could provide a higher significance of the results compared to smaller samples.

- For this thesis three event windows were used to assess M&A performance. In another study it might be interesting to use additional event windows to get more results.

5.3 Acquisition Guidelines According to This Thesis

- Acquisitions should be done at a rate sufficient to maintain competiveness and market shares, but not carried out when not necessary.

- In general, acquisitions are best made during bearish markets. This disregards the method of payment, even though it is possibly better to know when acquiring with cash instead of stock.

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7. Appendix

7.1 Sample Data

OMXS30 / The Sample
Alfa Laval AB
Assa Abloy AB
Atlas Copco AB
Boliden AB
Electrolux AB
Getinge AB
H & M Hennes & Mauritz AB
Modern Times Group MTG AB
Sandvik AB
Scania AB
Securitas AB
Skanska AB
SKF AB
Swedish Match AB
Svenska Cellulosa AB
Volvo AB

7.2   M&A Activity Compared to OMXS30

M&A activity (Our Sample) and OMXS30

Mn USD
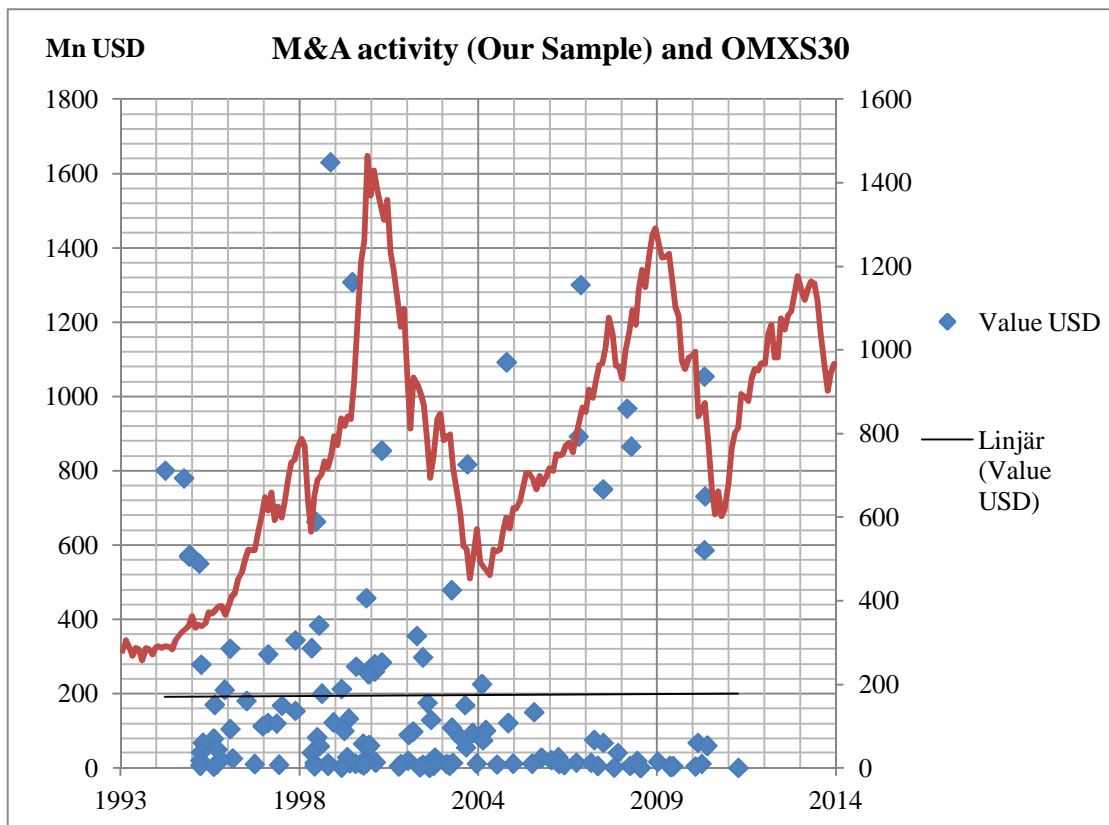
Source: Datastream

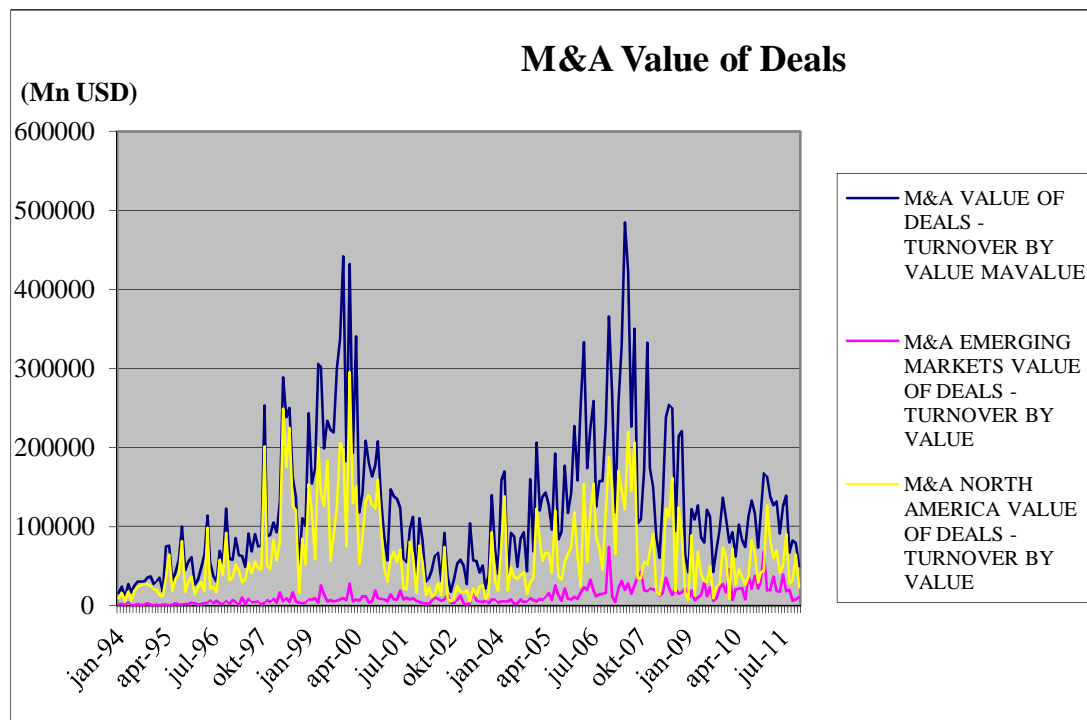## 7.3   GDP of Sweden

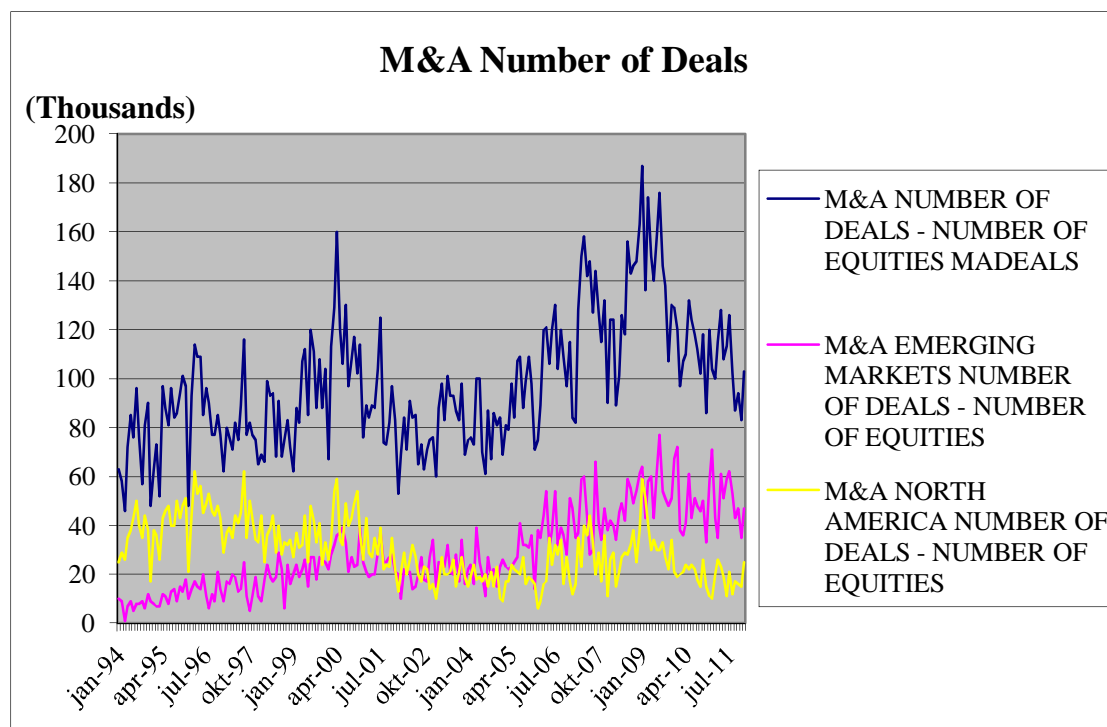**GDP Sweden**
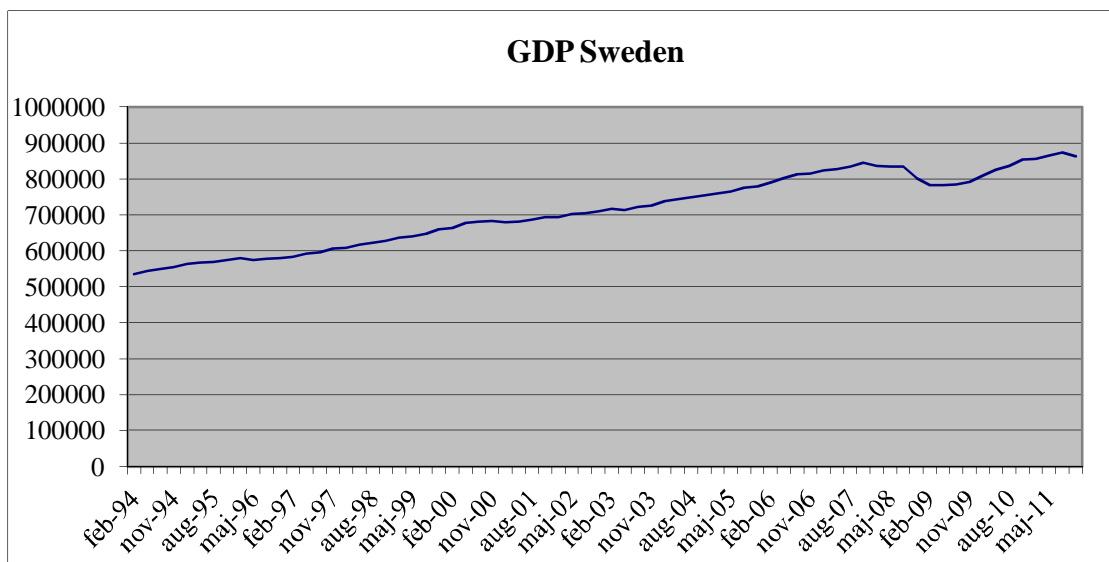
Source: Datastream (SCB)

7.4 Global M&A Statistics
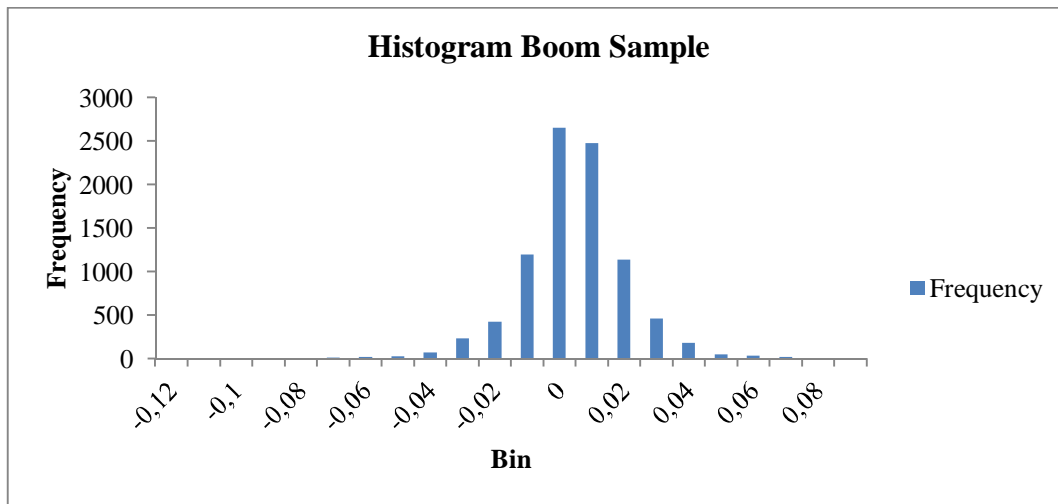
7.4.1 Deal value of M&A

Source: Datastream

7.4.2 Number of Deals
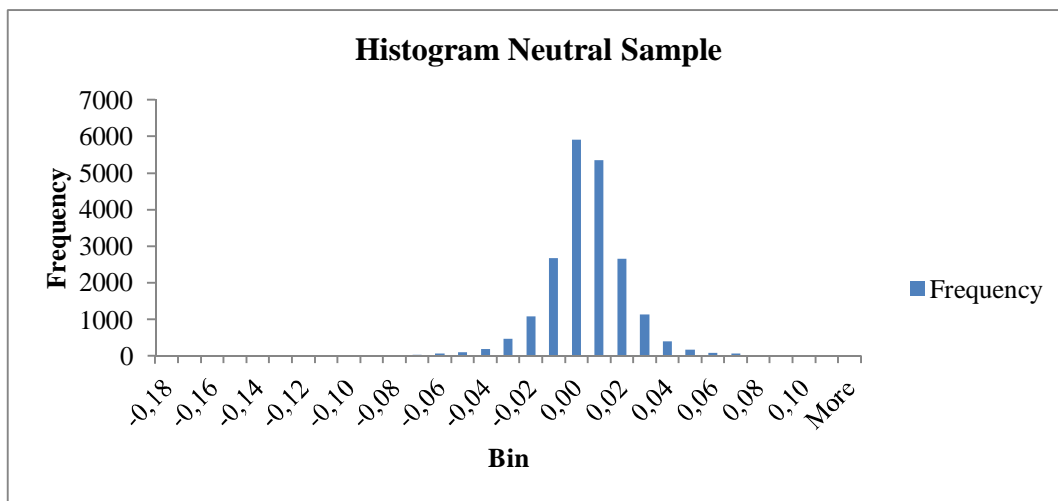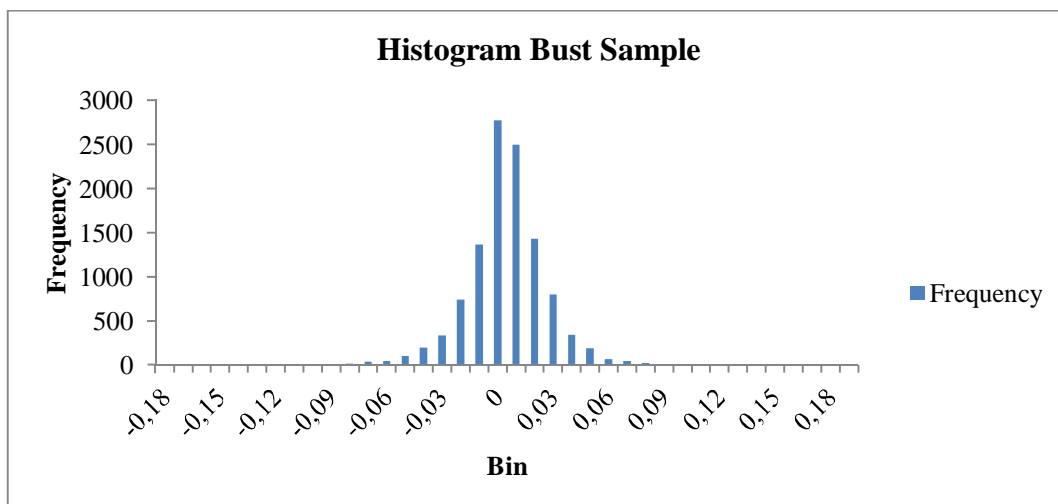

Source: Datastream

7.5 Histogram Sample

7.5.1 7.6.1 Histogram Boom

Histogram Boom Sample

7.5.2 Histogram Neutral
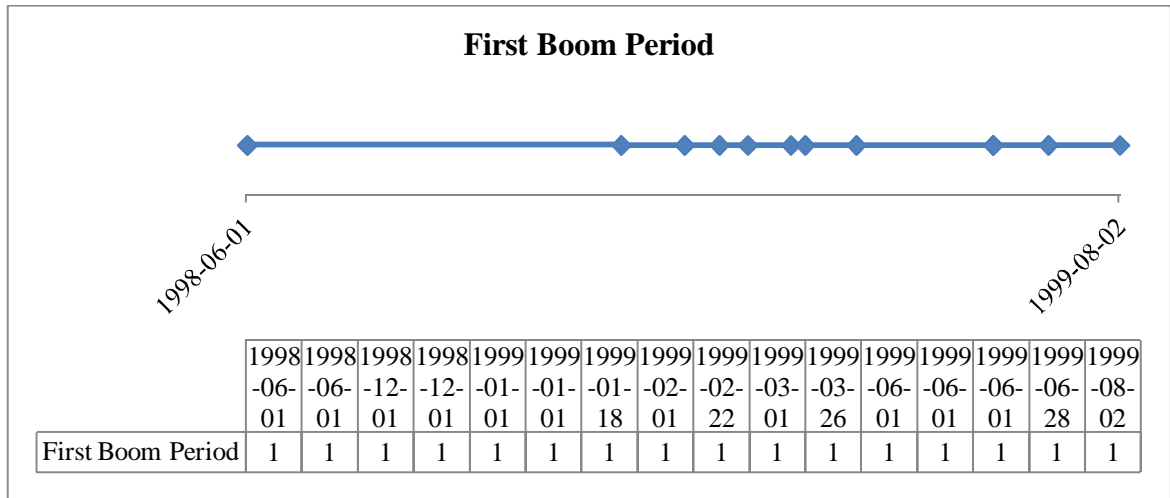

Histogram Neutral Sample

7.5.3 Histogram Boom

Histogram Bust Sample

7.6 Boom/Bust periods

7.6.1 First Boom Period

First Boom Period

	1998-06-01	1998-06-01	1998-12-01	1998-12-01	1999-01-01	1999-01-01	1999-01-18	1999-02-01	1999-02-22	1999-03-01	1999-03-26	1999-06-01	1999-06-01	1999-06-01	1999-06-28	1999-08-02
First Boom Period	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

7.6.2 Second Boom Period

Second Boom Period

	1999-12-01	2000-01-03	2000-01-20	2000-02-01	2000-03-01	2000-04-03	2000-04-13	2000-06-01	2000-06-28
Second Boom Period	1	1	1	1	1	1	1	1	1

7.6.3 Third Boom Period

Third Boom Period

	2002-03-25	2002-04-29	2002-04-29	2002-06-18	2002-07-11	2002-07-30
Third Boom Period	1	1	1	1	1	1

7.6.4 First Bust Period

First Bust Period

2001-01-22   2002-02-19

	2001-01-22	2001-01-22	2001-08-01	2001-08-24	2001-11-13	2001-11-21	2002-01-09	2002-02-19
First Bust Period	1	1	1	1	1	1	1	1

7.6.5 Second Bust Period

Second Bust Period

2003-03-17   2006-08-24

	2003-03-17	2003-03-18	2003-04-01	2003-07-01	2003-08-14	2003-08-25	2003-09-08	2003-11-04	2003-12-22	2004-02-19	2004-03-01	2004-04-01	2004-04-01	2004-08-04	2004-11-19	2004-12-08	2005-02-01	2005-08-31	2005-09-23	2005-12-15	2006-04-06	2006-06-21	2006-06-30	2006-08-24
Second Bust Period	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

7.6.6 Third Bust Period

Third Bust Period

2007-02-05   2007-06-21

	2007-02-05	2007-02-27	2007-06-21
Third Bust Period	1	1	1

7.6.7 **Forth Bust Period**

Forth Bust Period

	2008-11-20	2008-12-23	2008-12-29
Forth Bust Period	1	1	1